

## Appendix K Precipitation

BLM derived precipitation data and climatic adjustment factors (CAF) from data developed through the Parameter-elevation Regressions on Independent Slopes Model (PRISM) climate mapping system. PRISM maintains a new website at <http://prism.oregonstate.edu/>; (accessed 12/18/2014 and 2/27/2015). BLM used precipitation data from the PRISM Data Explorer located on the old PRISM website (<http://oldprism.nacse.org/>) to compile precipitation information for the Stag Mountain Allotment. Methods used by the PRISM model are described in Daly, et. al. (2008), located at [http://prism.oregonstate.edu/documents/Daly2008\\_PhysiographicMapping\\_IntJnlClim.pdf](http://prism.oregonstate.edu/documents/Daly2008_PhysiographicMapping_IntJnlClim.pdf).

The Climatic Adjustment Factor (CAF) is calculated from methodologies described in Sneva and Britton (1983). CAF is derived from Crop Year precipitation, which is measured from September of the previous calendar year through the following June. This is the precipitation which most affects plant growth. CAF can be used to normalize carrying capacity and vegetation production to what would be expected during a median precipitation year. However, applying the CAF to normalize the production and carrying capacity calculations for any one year may or may not, by itself, result in relatively comparable results between years. There can be other variables that affect vegetative production and/or carrying capacity calculations for some years which aren't normalized by applying the CAF. For example, if most of the precipitation is received in the winter and/or early spring but then it becomes dry by mid-May, there can be vigorous early growth but lower levels of growth later in the spring and summer compared to another year with the same annual CAF but the precipitation for vigorous growth extends through late May or June resulting in higher production and/or carrying capacity. In addition, a cold spring can slow growth even though the CAF indicates higher vegetative production compared to a similar precipitation year but warmer temperatures during the growing season. There are other factors that can affect the carrying capacity calculations, such as livestock periods of use and differences in how the livestock are distributed within a pasture.

For the Stag Mountain Allotment, two tables with precipitation information are provided below.

Table K1 provides information associated with Key Area SM-01 located at an elevation of 6,150 feet in the Stone Flat Pasture at the north end of the grazing allotment, which is in one of the lower elevation precipitation zones. The 30-year Median Crop Year Precipitation for SM-01 from 1985-2014, as per the PRISM model, is 9.67 inches.

TABLE K1. Total Annual Precipitation, Crop Year Precipitation, and Climatic Adjustment Factors (CAF), Derived from Precipitation Data are As Follows:				
Calendar Year	Total Annual Precip.	Crop Year	Crop Year Precip.	CAF
1985	9.73	1984 - 1985	8.32	0.83
1986	10.75	1985 - 1986	12.89	1.41
1987	11.74	1986 - 1987	9.38	0.96
1988	8.99	1987 - 1988	8.29	0.82
1989	9.60	1988 - 1989	9.87	1.03
1990	10.41	1989 - 1990	10.08	1.05

<b>TABLE K1. Total Annual Precipitation, Crop Year Precipitation, and Climatic Adjustment Factors (CAF), Derived from Precipitation Data are As Follows:</b>				
Calendar Year	Total Annual Precip.	Crop Year	Crop Year Precip.	CAF
1991	9.67	1990 - 1991	7.50	0.72
1992	9.39	1991 - 1992	7.76	0.76
1993	10.94	1992 - 1993	12.24	1.33
1994	9.94	1993 - 1994	7.71	0.75
1995	14.61	1994 - 1995	13.92	1.54
1996	15.02	1995 - 1996	12.18	1.32
1997	11.30	1996 - 1997	13.38	1.47
1998	15.18	1997 - 1998	13.60	1.50
1999	9.23	1998 - 1999	11.88	1.28
2000	10.67	1999 - 2000	8.29	0.82
2001	9.60	2000 - 2001	7.47	0.72
2002	8.52	2001 - 2002	9.78	1.01
2003	11.37	2002 - 2003	9.17	0.94
2004	12.34	2003 - 2004	8.86	0.90
2005	15.70	2004 - 2005	14.94	1.67
2006	12.89	2005 - 2006	13.32	1.46
2007	8.28	2006 - 2007	8.10	0.80
2008	10.01	2007 - 2008	9.41	0.97
2009	12.77	2008 - 2009	12.70	1.39
2010	14.51	2009 - 2010	9.79	1.02
2011	10.31	2010 - 2011	15.03	1.68
2012	9.48	2011 - 2012	7.45	0.72
2013	7.73	2012 - 2013	7.18	0.68
2014	15.09	2013 - 2014	9.56	0.99

Table K2 below is associated with Key Area SM-02 in the McIntyre Pasture which is located at an elevation of 7,540 feet on the upper part of Stag Mountain in one of the higher precipitation zones. The 30-year Median Crop Year Precipitation for SM-02 from 1985-2014, as per the PRISM model, is 14.46 inches.

<b>TABLE K2.</b> Total Annual Precipitation, Crop Year Precipitation, and Climatic Adjustment Factors (CAF), Derived from Precipitation Data are As Follows:				
Calendar Year	Total Annual Precip.	Crop Year	Crop Year Precip.	CAF
1985	14.02	1984 - 1985	12.92	0.87
1986	16.37	1985 - 1986	19.23	1.41
1987	15.59	1986 - 1987	12.73	0.85
1988	14.62	1987 - 1988	12.34	0.82
1989	13.48	1988 - 1989	15.56	1.09
1990	15.18	1989 - 1990	14.40	1.00
1991	14.66	1990 - 1991	11.93	0.79
1992	13.45	1991 - 1992	10.87	0.69
1993	15.63	1992 - 1993	18.34	1.33
1994	15.16	1993 - 1994	11.74	0.77
1995	20.43	1994 - 1995	19.77	1.45
1996	22.12	1995 - 1996	17.88	1.29
1997	16.18	1996 - 1997	20.01	1.47
1998	21.30	1997 - 1998	19.12	1.40
1999	14.11	1998 - 1999	17.26	1.24
2000	15.51	1999 - 2000	12.56	0.84
2001	14.36	2000 - 2001	11.56	0.75
2002	12.82	2001 - 2002	14.51	1.00
2003	16.43	2002 - 2003	13.46	0.92
2004	17.52	2003 - 2004	14.32	0.99
2005	21.91	2004 - 2005	20.28	1.50
2006	19.26	2005 - 2006	19.91	1.46
2007	13.07	2006 - 2007	12.71	0.85
2008	16.25	2007 - 2008	15.03	1.05
2009	17.44	2008 - 2009	18.29	1.33
2010	21.08	2009 - 2010	14.55	1.01
2011	15.51	2010 - 2011	22.16	1.66
2012	14.70	2011 - 2012	11.47	0.75
2013	11.61	2012 - 2013	11.43	0.74
2014	22.59	2013 - 2014	14.02	0.96

## References

Daly, Christopher, Michael Halbleib, Joseph I. Smith, Wayne P. Gibson, Matthew K. Doggett, George H. Taylor, Jan Curtis, and Phillip P. Pasteris. Physiographically sensitive mapping of climatological temperature and precipitation across the conterminous United States. International Journal of Climatology, 2008. Accessed January 13, 2014, at [http://prism.oregonstate.edu/documents/Daly2008\\_PhysiographicMapping\\_IntJnlClim.pdf](http://prism.oregonstate.edu/documents/Daly2008_PhysiographicMapping_IntJnlClim.pdf)

Sneva, Forrest and C.M. Britton. Adjusting and Forecasting Herbage Yields in the Intermountain Big Sagebrush Region of the Steppe Province. Oregon State University Agricultural Experiment Station Bulletin #659; August 1983.